



CarpeVITA
Take Control Of Your Life

What You Can Predict, You Can Prevent

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Introduction

Being able to predict disease provides a huge advantage as we begin to adopt that knowledge to make informed decisions that lead to prevention. This is all becoming possible with genomics, proteomics and other “omics,” which are transforming diagnostic and therapeutic strategies.

By analyzing an individual’s genetic makeup and family history, a prediction can be made as to whether or not that person is likely to get a disease, and this can happen well before any symptoms occur, allowing the individual and his or her physician(s) to make informed decisions.

Knowing your risk of certain diseases can help you prevent their onset and/or better manage the disease from an earlier stage. Genetic testing also gives you the advantage of being able to predict how you would respond to certain drugs so that you can take the one that will be most effective for you right off the bat.

The [P4 Medicine Institute](#) states that “On average, humans differ from one another by about 6 million nucleotides in their genomes,” and according to Bob Carlson in a [Biotechnology Healthcare article](#), “25,000 genes make up the human genome, and each gene may not be fully expressed. Additionally, multiple genes share multiple responsibilities, and each gene encodes multiple proteins, all of which interact in complex ways.” With bodies as complex as ours, its no wonder that different diseases and drugs for those diseases affect people differently. Each person is genetically unique and basing our medicinal practices on averages and statistics is simply not effective.

Biologists are finding that certain proteins in the blood, known as protein signatures, as well as whole-genome sequences are present in organ networks well before any symptoms of a disease occur. This is the future of predictive and preventative medicine.

The Key to Prevention is Prediction

These days, prevention is the true key to health because we have an increased life expectancy and we want those extra years to be enjoyable, while at the same time, we lead a more sedentary lifestyle and eat less healthy foods than people did one hundred years ago. But it's hard to know what prevention strategies to use when there are so many health conditions to prevent. So what is the key to prevention?

Are Health Screens the Answer?

Health screens help people recognize when a disease has entered the body and help to prevent further development and deterioration in an effort to reverse or halt the issue. But not every disease is reversible and taking that route can be long, arduous and costly, not to mention disruptive to one's life. The real avenue to health is to prevent diseases from arising in the first place.

But How Do We Know What to Prevent?

Everyone responds to treatments and prevention methods differently, and different people will get different diseases based on their family history, lifestyle and personal genetic makeup. One person can try to prevent heart disease but then end up with diabetes, and another person might put effort into a general prevention strategy but neglect certain lifestyle changes unknowingly that would have allowed them to prevent cancer. Someone might take a vitamin that they don't even need simply because they have heard that it does great things, while neglecting to take something that they are actually deficient in. So how do you know what you should be trying to prevent?

Until we know how to predict what we need to prevent, it's all just a guessing game. That's why the key to prevention is prediction. When you can predict your risk factors for certain diseases, you know what you need

to work on, and then you can work together with your healthcare provider(s) to develop a [personalized care plan](#) that removes the guesswork and makes your prevention plans more effective.

The Formula for Health

With the study of genomics and genome sequencing, we have come a long way in the science of healthcare, and we can now make predictions about genetic risk factors with a decent amount of accuracy. The more people participate in sharing their genetic data, the more accurate our predictions will become (one of the many reasons it is so important to share your data).

Here's the formula to health:

Predicting Risk Factors + Personalized Care Plan = Prevention, i.e. Health

Precision Medicine = Healthcare of the Future

The study of the human genome is also known as precision medicine. It allows healthcare providers to provide better healthcare that is more personalized and more effective at predicting, preventing and treating the health of their patients. As more data is collected, genomics will become more and more precise at predicting the health conditions that each of us could encounter in our lifetime.

More Informed Decisions

The more informed something is, the more effective it can be, and usually the easier the path is to make it happen. Since precision medicine allows physicians to make more informed decisions, they can provide more effective care for their patients.

By predicting the risk factors that are genetically probable for their patients through [genomic testing](#), physicians can come up with a personalized care plan for their patients that is more informed and

therefore more effective. They can take into account the health risks that they are more susceptible to, along with their family history and their lifestyle to determine the best course of action for their preventative plan.

Physicians can also use genomic data about their patients to make informed therapeutic decisions and to prescribe with more confidence. Instead of prescribing by trial and error, doctors are able to know their patients' responses to medications according to genetic makeup before even prescribing them. This helps to reduce adverse drug reactions and the wasted time and money that is spent on trying different treatments and medications.

Predict Before You Prevent

As you can see, it doesn't make sense to try to prevent everything without first predicting what might come up for you as an individual. While we should all take measures to make healthy lifestyle decisions in our lives, we also need to understand our genetic makeup so we can take extra measures to prevent those conditions we are more likely to end up with. Start with prediction and prevention becomes easier and more effective!

How to Predict a Health Crisis

With prediction comes the opportunity for prevention, and that can mean the difference between life and death, as well as quality of life. What could be more important than that?

The science of today is quite incredible and we are now able to make predictions about health that we couldn't just a few years ago. With the combination of your family history and a simple saliva test, you can gain access to insights about your health that are more personalized than ever, which just might allow you to prevent a health crisis.

Why Being Health Conscious Isn't Enough

More and more people are becoming health conscious. The problem is that they don't really have a personal plan to work off of so they read, watch and listen about the latest scientific health discoveries and then they try as many new health strategies as they can to prevent chronic disease. Not every health strategy will work for the same person though, and financial and time constraints keep us from trying everything we would like to try.

With the science of genomics, people can take a more strategic approach to their health. They can work with their health provider(s) to determine what conditions they are genetically predisposed to and then create a health plan that is based on what will work for their genetic makeup.

Prevention methods are more accurate when you know what you personally should be preventing to begin with. Of course it is important for everyone to make healthy lifestyle choices that will prevent diseases that form as a result of bad habits, and that is not what we are referring to here. Genomics tests, such as the [CarpeVITA Genotest](#), help you understand what diseases you are more likely to get than the general population of your ethnicity based on your DNA so that you can focus your healthy lifestyle strategies on those areas as well.

Why is Knowing Your Family's Health History Important?

Knowing your family's health history is a lot more important than you'd think it is! It not only keeps you on your toes as to what you should be looking out for in your own health, but also your children's!

Aside from inheriting your looks and mannerisms from your parents, you also inherit potential illnesses. These are carried along from their genes to you, since you get half your genes from your mother and the other half

from your father. Thinking that you are more susceptible to the diseases that run in the parent of your same gender's family is a fallacy, though the myth is rampant and accepted as truth.

Knowing your family's medical history is a simple, low tech and free way to determine your health risks. Families share genes, environment and lifestyle, all of which can provide clues to why certain medical conditions run in the family.

Understanding your family history can also help you determine your risk of passing certain conditions onto your children, identify other family members who could be at risk of developing certain diseases, and diagnose a health condition that might have otherwise gone unnoticed or could have been hard to diagnose.

Knowing your family history can:

- Assess your risk for certain diseases.
- Determine what you should be tested for and how often.
- Determine if a genetic test should be used.
- Identify a condition that might not even be considered for you in a health evaluation.
- Point you in the right direction for a lifestyle change in order to avoid prevalent diseases in your family's medical history.
- Identify other family members who may be at risk.
- Assess your risk of passing on your illness to your offspring.

Knowing your history shouldn't be viewed as a fail-safe end all for your health. These are merely predictions based on what has happened, not a crystal ball telling your future.

Some questions you should be asking your family members include:

- Do you have any chronic diseases, such as heart disease or diabetes, or health conditions such as high blood pressure or high cholesterol?
- Have you had any other serious diseases, such as cancer or stroke?
- How old were you when you developed these diseases?
- What are your lifestyle habits as far as alcohol consumption, smoking, dietary practices and exercise routines?
- What is our family's ancestry? What country did they come from?
- What diseases did your deceased relatives have?
- How old were they when they died?
- What caused their deaths?

Bring it up at a family gathering. Talk to them about their medical histories and work with them on compiling the information.

How to Gather Your Family's Medical History

A pedigree is the scientific term for a complex record of family medical history that helps doctors and patients predict their heritable risk of diseases like cancer, heart disease, type 2 diabetes and high blood pressure.

To create your pedigree, collect the following on each family member:

- Date of Birth
- Sex
- Ethnicity
- Physical and Mental Health Conditions, including substance abuse
- Age of diagnosis for each condition
- Age of death
- Cause of death

- Pregnancy complication, including miscarriage, stillbirth, birth defects, infertility
- Lifestyle habits – diet, exercise, tobacco use

You'll want to go as far back as your grandparents and include all of your siblings, aunts, uncles, cousins, nieces and nephews on both your mother's and father's side of the family. Compiling info from both of your parents' families is important because breast cancer genes can be passed on from the father's side, for example, and an inherited condition can exist on your father's side that causes miscarriages. Most people don't realize these things.

It's also important to note the age when each family member's health issue began, and keep in mind that diseases that come about before the age of 50 tend to have a strong genetic component. Race and country of origin are also important because certain health issues are more common in certain ethnicities.

When researching the medical history of family members from a long time ago, keep in mind that the terms they used were different than what we use today, and since medicine was less advanced, it was common for doctors to list the cause of death as "unknown." Prevention magazine has a helpful list of what some of the most common terms used long ago may mean. [Click here to view the list.](#)

Did you know: In 2004, the US Surgeon General declared Thanksgiving to be known as [National Family History Day](#). The hope was that as we all gather with our family over Thanksgiving dinner, that we would also share important health information with the family. You can create a [Family Health Portrait](#) using the tool provided by the Surgeon General's office.

What To Do Once You've Compiled Your Family Medical History

- Consult with your healthcare provider to determine what your risks are so that you can create a plan of action to help you prevent those diseases. Some things your provider may suggest include quitting smoking, eating a healthier diet, getting consistent exercise, taking a dietary supplement, etc.
- Your physician may suggest that you get some screenings, such as blood tests or [genomic testing](#) to further determine your level of risk. More frequent screenings may also be suggested to keep an eye on your greatest risks.
- Share your family history with other family members. You could save their life!

What if family members are uncomfortable talking about health history?

Some family members might be uncomfortable talking about their medical histories with you. Some strategies for making this attempt easier include:

- Sharing your purpose. Explain to them why this is important to you and everyone else in the family.
- Provide alternative means of communication. Some people aren't comfortable with talking in person. Give them your email or phone number.
- Choose your wording carefully. Make sure you're coming off as you intend to.
- Listen well. Make sure they know that you care about what they have to say, and be understanding.
- Respect their privacy. If a family member simply does not want to share their medical history with you, don't make the situation uncomfortable by trying to force anything.

- Be sure to record deceased relatives and their cause of death. Asking will only get you so far on this, but family trees may be available as well as any hospital or doctor medical records.

What if you're adopted?

If you were adopted, ask your adoptive parents if they obtained any medical records containing information about your biological parents along with your adoption. Contact the adoption agency. While it's not completely common just yet, more adoption agencies are collecting biological parents' medical records. The adoption agency may also have the contact information for your biological parents. If you don't feel comfortable contacting them yourself, ask if the adoption agency is willing to do it for you.

What happens if you're family history determines there are health risks in your family?

If a family member had a chronic disease, it is possible that you are at risk for that disease as well, but how do you know for sure? A CarpeVITA Genomic Genotest looks at your DNA through a simple saliva test administered by your health care provider. From your DNA, you can find out if you have a genetic disposition to a certain disease. After collecting your family's history, you can take the next step and [order a CarpeVITA Genotest here](#).

Should You Worry About Your DNA in the Cloud?

According to [MIT Technology Review](#), for almost 2 years, Google has been acquiring genome data from hospitals and universities in preparation for their roll out of [Google Genomics](#), a cloud computing service for DNA data. This cloud infrastructure will store, process, analyze and share DNA

sequence data, reference-based alignments and variant calls. And Google is not the only one. Apple, Amazon and IBM are some of the other big players in this development.

Should you be worried about having your DNA in the cloud? While there are distinct privacy issues that will need to be addressed, there are many strong advantages to storing it as well. That's because it will advance medical discoveries and set the stage for a new approach to healthcare. It brings biology and technology together to create diagnostics that allow for early detection and preventative strategies.

Until now, researchers have only had a very narrow view of what to do about diseases. Drugs and treatments have typically been developed as a result of performing studies on broad populations of people. According to [The Jackson Laboratory](#), however, "on average, any given prescription drug now on the market only works for half of those who take it. Among cancer patients, the rate of ineffectiveness jumps to 75 percent."

With the science of genomics, which is the study of the human genome and the role it plays in biology and disease, each person can now be their own control for disease assessment. This makes it possible for you to learn what diseases you are genetically predisposed to, as well as how treatments and pharmaceuticals will affect you based on your genetic makeup.

But genome sequences on their own are essentially useless. It's the comparison of multiple genome sequences that shines a light on what is normal and what is a mutation. Comparing a few sequences still leaves room for too many variations. With a database of thousands of genomes to analyze, recognizing the inconsistencies becomes easier, and when you can study millions of genomes at a time, the possibilities in medical advances are astronomical. The bigger the database, the better. Google Genomics then becomes a search database that doctors can use to make

more informed diagnoses and conclusions about treatments and preventative measures.

Leroy Hood, MD, PhD, President of the Institute for Systems Biology in Seattle, WA, states that “In 10 years, each patient will be surrounded by a virtual cloud of data points, and we will have the tools to reduce the enormous data dimensionality into simple hypotheses about how to optimize wellness and avoid disease for each individual.”

Think about a loved one who gets cancer. What if Google Genomics could ensure that person receives treatments that will actually work instead of trying numerous highly expensive drugs that may or may not work? Or what if your loved one could have prevented the cancer in the first place because their doctor recognized the predisposition was there ahead of time?

Having our DNA in the cloud makes personalized medicine possible, and that makes our healthcare more precise, predictable, and beneficial. It means we can see strong advancements in diagnosis, medications and treatments that are safer and more effective.

Personalized medicine is part of the CV4P™ approach that is creating change in our healthcare system. [CV4P™](#) means we will enjoy healthcare that is [Predictive](#), [Preventative](#), [Personalized](#) and [Participatory](#). It has the power to solve the challenges of global health by bringing a much higher level of healthcare competency, reducing healthcare costs, and moving from a reactive system to one that is preventative. None of this is possible, however, without the ability to analyze population health genomes.

With the Affordable Care Act, population health initiatives have been put in place, making hospitals more accountable for the health of their local population as the years go on. Health care providers are being driven to ensure their patients stay well instead of simply treating them when they are sick. This is being mandated by the government, and genetic data is one of the most important parts of making it possible.

But what about the privacy issues?

Genome databases need to be careful how much information they provide alongside the genetic data of each individual. The more information that is provided, the clearer the picture gets for scientists and doctors to analyze the data and make conclusions. At the same time, however, adding more data such as age, sex, diet habits, smoking habits, geographic location, family history, etc, makes it easier to identify whom the genome belongs to.

There is another privacy issue to consider as well: if researchers are studying a patient's DNA for one disease and they come across a separate disease in the genome, should they notify the patient? What if they determine the patient has a sibling they didn't know about? Should that be brought to the table?

These issues won't be solved overnight, but the establishment of standardized policies is underway in an effort to ensure the best privacy possible.

P4 Health: The Change Our Healthcare System Needs

Healthcare challenges have never been so real, but it has never been so revolutionary either. A shift is taking place that is bringing health, wellness, science, technology, engineering and mathematics together to solve the challenges of global health. This shift is called P4 Health, otherwise known as P4 Medicine, and it will literally revolutionize the healthcare industry, pharmaceuticals, biotechnology, diagnostics, healthcare technology, health insurance, therapy, prevention, wellness, nutrition, assessments of environmental toxicities, and academia and medical schools.

Personalized medicine is a big part of P4 Health, as you will see when we answer the question, "what is P4 Health?" It is bringing together the four

key P's of health: Prediction, Prevention, Personalization and Participation. When these four concepts exist, healthcare competency is elevated, healthcare costs come down, and our healthcare system moves from reactive to preventive.

Prediction

P4 Health is data driven, utilizing billions of patient data points, from which scientists are able to create predictive models that will take healthcare to new heights. It puts each person as their own control for disease assessment, instead of relying on the data of studies.

This is made possible with the digital information derived from genomics, which is the study of the genome and the role they play in biology and disease, as well as the environmental information that modifies that genetic information. It's biology and technology working together to create diagnostics that allow for early detection and preventive strategies.

Prevention

Through genomics and systems approaches, preventive drugs and new vaccines will surpass current options. With the power to predict disease, we are then able to prevent disease at the earliest stages.

Personalization

With each person acting as the control in what is essentially their own individual study, the information generated from their personal DNA will lead the way to predictions and care that is based on their unique genetic makeup. In this way, they can focus on preventing the specific diseases they are more likely to get and they can integrate the treatments that will work for them as an individual.

Participation

Patients will be able to participate in their own health in new ways, and it will be necessary for them to do so for P4 Health to work. Technology and tools will be provided to empower patients to take a more active role in optimizing their state of wellness.

Digitalization Transformation

The digitalization of biology and medicine are making P4 Health possible, and Lee Hood from the Institute for Systems Biology in Seattle, WA, states that it will “transform medicine even more than digitalization transformed info technologies and communications.” This is because it is making it possible to analyze single molecules, single cells, single organs and single individuals. Digitalization will also serve to lower healthcare costs.

The Role of Genomics in P4 Health

Genomics is the science that is leading this personalized health transformation. It allows scientists to evaluate an individual’s DNA to make predictions based on diseases the individual is genetically predisposed to and the treatments and medications that are likely to work best for the individual. A [CarpeVITA GenoTest](#) can be taken with a simple saliva sample, and then individuals can work together with their health provider(s) to create a more effective, customized plan of care.

Environmental & Lifestyle Factors

It is important to point out that personalized medicine does not take into account environmental and lifestyle factors that could lead a person to develop a disease, and that if a genomics test finds that you are not genetically predisposed to a disease, it does not mean that you won’t get the disease due to environmental and/or lifestyle factors.

For this reason, it is important to engage in healthy lifestyle habits, refrain from unhealthy lifestyle habits and avoid unhealthy environmental factors. With the help of your physician, consider taking herbal supplements to support the body's natural ability to heal itself. Eat a healthy diet, get consistent exercise, don't smoke, reduce the stress in your life, and give your body the sleep it needs to rejuvenate each night.

Personalized medicine approaches are already available, and through the [CV4P™ model](#), CarpeVITA is one of the leaders of this P4 Health approach.

Take Control of Your Life the CV4P™ Way

With personalized medicine, the focus is on prevention and wellness. By understanding your risk areas, you can change your lifestyle habits to help prevent those diseases from occurring. It's healthcare designed specifically for you!

By adopting the concept of P4 Health and the CV4P™ model for yourself, you'll center your health and wellness around Prediction, Prevention, Personalization and Participation. It's time to Carpe Vita, which means "Take Control of Your Life!"

About CarpeVITA, Inc.

CarpeVITA, Inc. is setting the standard for healthcare outcomes by providing services that encourage prediction, prevention, personalization and participation.

Our CV4P™ Approach

CV4P™ provides the bridge every health care professional and patient needs to Predict, Prevent, Personalize and Participate in their health. It provides individuals with a customized roadmap to optimal wellness.

CV4P™ is about helping people reach and maintain wellness to improve population health and individuals, families, companies, communities and healthcare providers on the right track.

CarpeVITA Health Networks

A CarpeVITA Health Network is an integrated medical network that facilitates our CV4P™ approach to health and wellness. In a CV Health Network, the fragmented parts of the current healthcare system become coordinated, procedure-oriented care becomes outcome oriented, reactive care becomes proactive care, and provider-payer conflicts become alignments. Patients, Physicians, Healthcare Systems and Complementary Providers all benefit from using the CV Health Network model.

Contact Us Today to See What We Can Do For You!

Call Toll Free: 844-P4CARPE
www.CarpeVITAinc.com

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